SMC April 2008; rev19

NSS-03-01 SMC/XR Template

Usage Note: This flow chart has been modified using information from NSS03-01, DoD 5000 and other applicable documentation for use by SMC/XR as a training aid/template (including some draft documentation) It has been tailored for that organizations use and other organizations may follow a different/modified version of what is presented here

Defense Acquisition University

NSS Decision Support Systems Effective Interaction is Essential

JCIDS process, architecting process, and operators/using entities develop JCIDS products (e.g., Initial Capabilities Development Document (CDD), Joint Operation Concepts, etc.) with support from space acquisition organizations as requested. Once it is clear that a space system needs to be acquired, J8 will notify DoD Space MDA.

Pre KDP-A
Concept Studies

Phase A
Concept Development

Includes concept studies, assessments and requirements (e.g., technology development, Capability Development Document). During this phase, baseline development is mature enough to enter the formal acquisition

ICD

Concept Decision Meeting

Service/JROC Validation & Approval

KDP A

KDP B

Program Management

Key PM Topic Areas for KDP Preparation (Details on back side of chart)

Objectives:
- Develop & document a systems engineering process for developing pre-AoA materiel solutions
- Validate the process using a case study with a stated capability shortfall & document the results

Deliverables:
- Systems Engineering Plan specifically tailored for pre-AoA material concepts
- Characterization & technical data of the materiel solutions developed for t
- stated capability shortfall

Mature Acquisition Strategy | 11-14) High Level Document Approvals | 2a-d) Program Description, Organization & Progress | 5) SEP | 2f-j) Detailed Budget Information | 7-8) Cost Drivers & Trades | 3) Exit/Entry Criteria Analysis/Review | 11-15) High-Level Document Approvals

2a-c) Program Description & Organization | 5) SEP | 2f-j-8-16) Prog Estimate/Executability & Cost Drivers | 1) MDA Approved Acquisition Strategy | 17) IMS | 4) Requirements & Architecture Summary | 16) Program Estimate, POM, CARD | 10) Support Issues | 18) ADM/APB

4a-c) Requirements | 2d) Technologies/Studies Accomplished | 18) ADM

9) Risk Management & Probability of Program Success Assessment

9) Detailed Risk Management & Probability of Program Success Assessment

Objectives:
- Plan and Conduct an AoA to determine preferred materiel solution
- Match User Requirements to available technology

Deliverables:
- Analysis of Alternatives Report
- KDP A required documentation

Exit Criteria Met | DSAB | MDA → ADM

Objectives:
- Mature Technologies to TRL 6
- Develop a firm, cost effective program baseline meeting user requirements

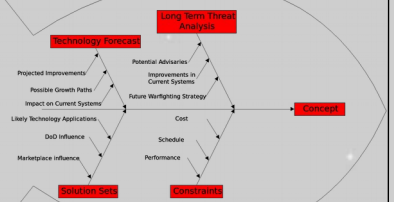
Deliverables:
- Approved System Specification and Function Baseline (Note: Key NSS 03-01 requirement that differs from DoD 5000)
- KDP B required documentation (see reverse side)
- Planning must allow time and schedule for iterative technology development - Maturing technology may not achieve SRR or SFR criteria on first attempt

KPPs → CDD

Exit Criteria Met | DSAB | MDA → ADM

Solution Identification

# of options reduced from 1000 + Pre KDP A to final solution by KDP B

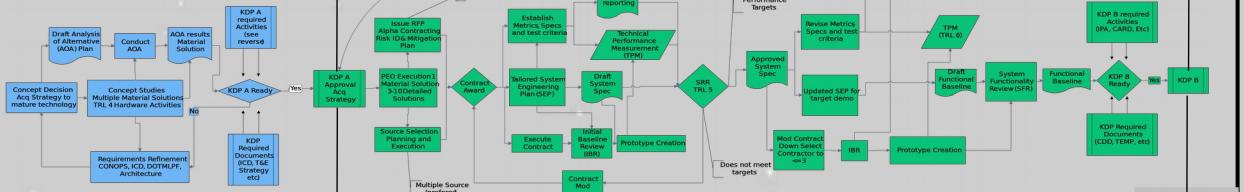


Key Activities

Flow Diagrams Describing Major Activities and their relationships

Phase 1: Tech Maturation | Phase 2: System Maturation

AOA | SRR | SFR



Service/JROC Validation & Approval

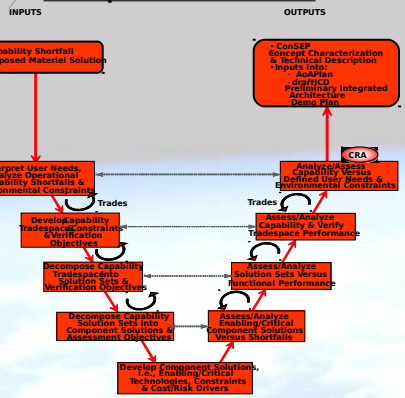
Service/JROC Validation & Approval

Characterized Concept

Preferred System Concept

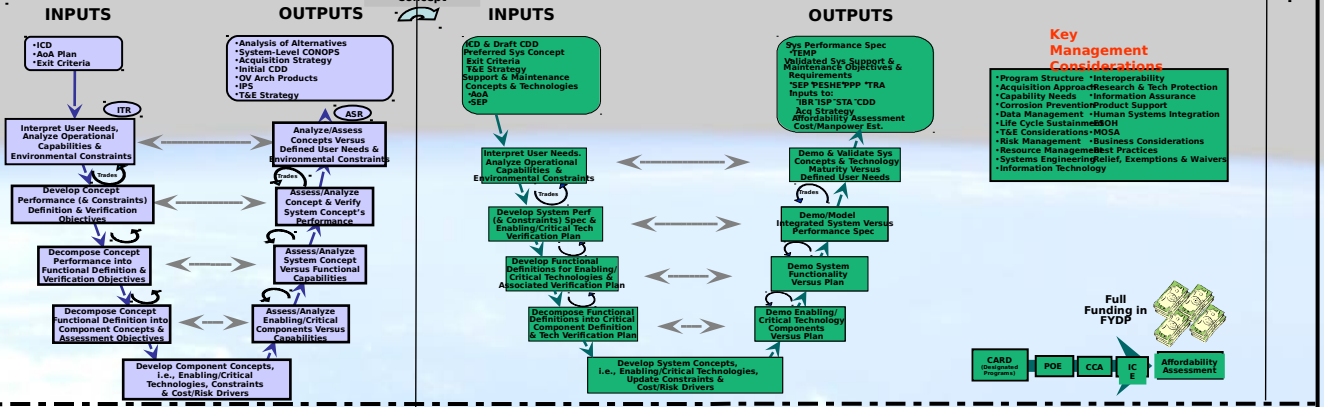
Implementable Prgm Baseline

Concept Characterization


INPUTS
OUTPUTS
Capability Shortfall
Proposed Materiel Solution
• ConSEP
Concept Characterization & Technical Description
• Inputs into AoAPlan
• Draft CD
Preliminary Integrated Architecture
Demo Plan
Interpret User Needs, Analyze Operational Capability Shortfalls & Environmental Constraints
Analyze/Assess Capability Versus Defined User Needs & Environmental Constraints
CRA
Trades
Develop Capability Tradespace & Verification Objectives
Assess/Analyze Capability & Verify Tradespace Performance
Decompose Capability Tradespace into Solution Sets & Verification Objectives
Assess/Analyze Solution Sets Versus Functional Performance
Decompose Capability Solution Sets into Component Solutions & Assessment Objectives
Assess/Analyze Enabling/Critical Component Solutions Versus Shortfalls
Develop Component Solutions, i.e., Enabling/Critical Technologies, Constraints & Cost/Risk Drivers

Technical

Systems Engineering Test & Evaluation Supportability


INPUTS
•ICD
•AoA Plan
•Exit Criteria
OUTPUTS
•Analysis of Alternatives
•System-Level CONOPS
•Acquisition Strategy
•Initial CDD
•OV Arch Products
•IPS
•T&E Strategy
ITR
ASR
Interpret User Needs, Analyze Operational Capabilities & Environmental Constraints
Analyze/Assess Concepts Versus Defined User Needs & Environmental Constraints
Trades
Develop Concept Performance (& Constraints) Definition & Verification Objectives
Assess/Analyze Concept & Verify System Concept's Performance
Decompose Concept Performance into Functional Definition & Verification Objectives
Assess/Analyze System Concept Versus Functional Capabilities
Decompose Concept Functional Definition into Component Concepts & Assessment Objectives
Assess/Analyze Enabling/Critical Components Versus Capabilities
Develop Component Concepts, i.e., Enabling/Critical Technologies, Constraints & Cost/Risk Drivers
INPUTS
ICD & Draft CDD
Preferred Sys Concept
Exit Criteria
T&E Strategy
Support & Maintenance Concepts & Technologies
AoA
SEP
OUTPUTS
Sys Performance Spec
TEMP
Validated Sys Support & Maintenance Objectives & Requirements
SEP
PESHE
PPP
TRA
Inputs to:
IBR
ISP
STA
CDD
Acq Strategy
Affordability Assessment
Cost/Manpower Est.
Interpret User Needs, Analyze Operational Capabilities & Environmental Constraints
Demo & Validate Sys Concepts & Technology Maturity Versus Defined User Needs
Develop System Perf (& Constraints) Spec & Enabling/Critical Tech Verification Plan
Demo/Model Integrated System Versus Performance Spec
Develop Functional Definitions for Enabling/ Critical Technologies & Associated Verification Plan
Demo System Functionality Versus Plan
Decompose Functional Definitions into Critical Component Definition & Tech Verification Plan
Demo Enabling/ Critical Technology Components Versus Plan
Develop System Concepts, i.e., Enabling/Critical Technologies, Update Constraints & Cost/Risk Drivers

Tech Demonstrations & Prototypes

Key Management Considerations

- Program Structure
- Acquisition Approach
- Capability Needs
- Corrosion Prevention
- Data Management
- Life Cycle Sustainment
- T&E Considerations
- Risk Management
- Resource Management
- Systems Engineering
- Information Technology
- Interoperability
- Research & Tech Protection
- Information Assurance
- Product Support
- Human Systems Integration
- ESOH
- MOSA
- Business Considerations
- Best Practices
- Relief, Exemptions & Waivers

Full Funding in FYDP

CARD (Designated Programs) | POE | CCA | IC E | Affordability Assessment

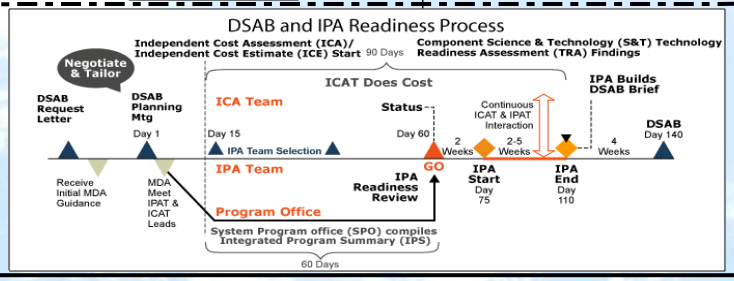
Oversight & Review Acronyms

ADM – Acquisition Decision Memorandum
AoA – Analysis of Alternatives
APB – Acquisition Program Baseline
CD – Concept Decision
DAB – Defense Acquisition Board
DSAB – Defense Space Acquisition Board
ESOH – Environment, Safety & Occupational Health
EVM – Earned Value Management
IBR – Integrated Baseline Review
ITAB – Information Technology Acquisition Board
MDA – Milestone Decision Authority
MOSA – Modular Open Systems Approach
PSR – Program Support Review
T&E – Test and Evaluation
TLCSM – Total Life Cycle Systems Management

Cost Acronyms

CARD – Cost Analysis Requirements Description
CCA – Component Cost Assessment
ICE – Independent Cost Estimate
POE – Program Office Estimate
PMO – Program Management Office
RDT&E – Research, Development, Test & Evaluation

DSAB and IPA Readiness Process



Technical & Logistics Acronyms

ASR – Alternative Systems Review
CDD – Capability Development Document
CI – Configuration Item
CRA – XXXXXXXX
DOTMLPF – Doctrine, Organization, Training Manpower, Leadership, Personnel and Facilities
DT&E – Developmental Test & Evaluation
ESOH – Environmental, Safety & Occupational Health
ICD – Initial Capabilities Document
IPA – Independent Program Assessment
IPS – Independent Program Summary
ISR – In-Service Review
ISP – Information Support Plan
ITR – Initial Technical Review
J ROC – Joint Requirements Oversight Council
KDP – Key Decision Point
KPP – Key Performance Parameter
PESHE – Programmatic Environment, Safety & Occupation Health Evaluation
PPP – Program Protection Plan
RMS – Reliability, Maintainability & Supportability
SEP – Systems Engineering Plan
SFR – System Functional Review
SRR – System Requirements Review
STA – System Threat Assessment
SVR – System Verification Review
T&E – Test & Evaluation
TEMP – Test & Evaluation Master Plan
TDS – Technology Development Strategy
TRA – Technology Readiness Assessment

IPS Contents

	KDP-A	KDP-B	References
1 Acquisition Strategy			
a) DoD Space MDA approved Acquisition Strategy	X	X	**NSS 03-01 AP4.1.1&2 & E2, DoDI 5000.2 E3.T2, SMCI 63-102 4.2.6, A2.3.15**
b) Documentation of Market Research for applicable commercial items that was conducted	-	X	**10 USC §2377, 15 USC §644(e)(2); NSS 03-01, E1**
c) *Certification (?) of legal review of Acquisition Strategy*	-	X	**10 USC §2440, 10 USC §2469 NSS 03-01 AP4.1.1 & E2DFARS 207.103(d)(i), DoDI 5000.2 E3.T2**
d) Documentation of bundled procurement contracts affecting small business	-	X	**NSS 03-01 AP4.1.1&2, E1 & E2, DoDI 5000.2 E3.T2**
2 Execution Status of Program			
a) High-level program description	X	X	**AFPD 10-28, NSS-03-01 E4.2a**
b) Summary of program management structure and program office staffing levels	X	X	**10 USC §2434, NSS 03-01 E4.2a, SMCI 63-102**
c) 'New Start' certification	X	X	**AFFARS 5332.702-90, NSS 03-01 E1(b)**
d) Description of program progress in prior phase. For KDP-A, address technologies / studies accomplished.	X	X	**NSS 03-01 AP4.1.1&2, E2, 4.2(d), DoDI 5000.2 E3.T2, SMCI 63-102 4.2.6, A2.3.15, A2.5**
e) Comparison of program content and cost to following documents (as appropriate), explain differences:			
• AoA Report and System CONOPS	X	-	**NSS 03-01 AP1.2.1.2, E4.2(e) DoDI 5000.2 E3.T2, E6.5, E1, E4.6, AFPD 10-28, SMCI 63-102 Atch 4, Atch 5**
• KDP-A ADM and/or ADM Updates	-	X	**NSS 03-01 AP4.1.2 & E2, E4.2(e), DoDI 6000.2 E3.T2, SMCI 63-102 4.2.6., A2.2.4, A2.3.11.1.6, 2.3.13, Atch 4, Atch 5, A2.3.15**
f) Identify and document current unit costs and changes from original program baseline documents as identified in (e) above. Explain all changes.	X	X	**10 USC §2433, 10 USC §2435 10 USC §2220(a)(2), NSS 03-01, AP4.1.3 &E1, E2, E3, E4.2(f), E1, E2, E3, API 63-123, SMCI 63-102 A2.2.4**
g) Description of current year financial execution performance	-	X	**NSS 03-01 E4.2(g), SMCI 63-102, 4.10.3**
h) Document Earned Value Management System (EVMS) use	-	X	**SMC Guidance (FMCE), Definition Guidebook NSS 03-01 E4.2(h)**
i) Document efforts to explore and evaluate cooperative opportunities with Allies	-	X	**10 USC §2350a, NSS 03-01 E4.2 (i)**
j) Projection of program's executability for the next phase and document the underlying assumptions.	X	X	**NSS 03-01 AP1.1.12, E4.2(m) DoDD 5200.39, AFPD 63-17 AFPEO/SP SRTP, Policy 63-17 Defense Acquisition Guidebook**
k) Summary of Class 1 Engineering change activity and other important MDA, CAE, PEO, and/or SPD/PM decisions in advance of the KDP.	X	X	**41 USC §432, NSS 03-01 E4.2(m)**
l) CONOPS (from concept sponsor)	**initial**	**update**	**AFPD 10-28, NSS 03-01 E1(c), SMCI 63-102, Atch 5**
m) AoA Report (from assigned organization)	X	-	**NSS 03-01 AP1.2.1.2, E1(b) DoDI 5000.2 E3.T2, E6.5 E1, E4.6, SMCI 63-102, Atch 5**
3 ADM Exit Criteria and Direction at Previous KDP			
a) Previous KDP ADM and any associated documentation	-	X	**NSS 03-01 AP4.1.2 & E2, DoDI 5000.2 E3.T2, SMCI 63-102 4.2.6. A2.3.15**
b) Summary of how the exit criteria were met.	-	X	**NSS 03-01 E4.3(a), SMCI 63-102, 4.2.8, A2.3.13**
c) Document guidance, decisions, and/or Congressional actions made subsequent to prior KDP review and how they were accommodated, if applicable	-	X	**NSS 03-01 AP4.1.2 & E2, E4.3(b) DoDI 5000.2 E3.T2, SMCI 63-102 4.2.6., A2.3.15**
4 Requirements And Architecture Summary			
a) Program requirements [i.e. ICD, CDD, CPD, and STAR summary] and validating/approving dates/agencies			
• Initial Capabilities Document (ICD) from Capability Needs Authority	X	-	**CJCSM 3170.01, NSS 03-01 E1(a), SMCI 63-102, Atch 5**
• Capability Development Document (CDD) from Capability Needs Authority	**initial**	**update**	**CJCSM 3170.01, NSS 03-01 E1(e), SMCI 63-102, Atch 5**
• System Threat Assessment Report (STAR) summary	-	X	**DoDD 5105.21 Defense Acquisition Guidance NSS 03-01 E4.4(a), SMCI 63-102, Atch 5**
b) Document any remaining or ongoing requirements validation/approval activities	X	X	**TRA Deskbook, AFI 36-2251, AFMAN 36-2234 NSS 03-01 E4.4(b),**
c) Document rationale for requirements shortfalls,	X	X	**TRA Deskbook,**

IPS Contents

	KDP-A	KDP-B	References
waivers, anticipated referrals deviations, and/or deletions or omissions			**AFI 36-2251, AFMAN 36-2234 NSS 03-01 E4.4(c), SMCI 63-102, 7, A.2.2.4.1, Atch 5**
d) Document which JROC approved NSSO architectures apply to the system/program and how compliance is or isn't attained	-	X	**CJCSM 3170.01, NSS 03-01 E4.4(d)**
e) Document program Space Situational Awareness (SSA) requirements	-	X	**NSS 03-01 E4.4(g), SMCI 63-102, Atch 5**
f) Document program's Modular Open Systems Approach (MOSA)	-	X	**40 USC §11101, PL 107-248 Sec. 8088, PL 105-261 Subtitle D, Sec. 311, NSS 03-01 E4.4(h)**
g) Integrated Architecture	-	**initial**	**CJCSM 3170.01, NSS 03-01 E4.11(a)**
h) Certify program's DoD Strategic Plan compliance	-	X	**5 USC §306, 10 USC §118, NSS 03-01 AP4.1.1, E1, PL 106-65, Sec 901-902, E4.2, SMCI 63-102, 4.2.3, 4.2.7, 6 A2.3.3.8, 2.3.11.1.3, Atch 5**
i) System View (SV) products	-	**initial**	**DoDI 5000.2, NSS 03-01 E1(g), SMCI 63-102, Atch 5**
j) Technical View (TV) products	-	**initial**	**DoDI 5000.2, NSS 03-01 E1(g), SMCI 63-102, Atch 5**
5 System Engineering Process Review and System Engineering Plan			
a) Systems Engineering Plan	-	X	**Defense Acquisition Guidebook AFI 10-102, Para A2.5.1, MIL-PRF-49506, NSS 03-01 E4.5(a)**
b) System Specification (i.e "A" Spec")	-	X	**NSS 03-01 E1(k)**
6 Alternatives Assessed and Results			
a) Summary of the AoA Report results.	X	-	**NSS 03-01 AP1.2.1.2, E1, E4.6 DoDI 5000.2 E3.T2, E6.5**
b) Summary of concept/architectural studies.	-	X	**AFPD 10-28, NSS 03-01 E4.8**
7 Most Promising Alternative and Rationale			
a) Document cost, schedule, & performance assessment of most promising alternative	X	X	**10 USC §2434, NSS 03-01 E4.7 (a) SMCI 63-102**
b) Describe the reasons supporting its selection	X	X	**10 USC §2434, NSS 03-01 E4.7 (b) SMCI 63-102**
8 Cost Drivers & Major Trade-offs			
a) Document use of CAIV or methodologies to balance life cycle costs, schedule, and technical issues while satisfying user requirements.	-	X	**DoDI 5000.2, DoD 5000.4M, AFI 65-508, NSS 03-01 E4.8 (a)**
b) Document current cost drivers.	X	X	**NSS 03-01 E4.8(b), SMCI 63-102**
c) Identify major trade-off decisions affecting cost, schedule, and/or performance made in the prior acquisition phase and ones to be made in the future.	-	X	**NSS 03-01 E4.8(c), DoDI 5000.2, DoD 5000.4M, AFI 65-508, SMCI 63-102**
d) Describe how contractor(s) will be incentivized to meet or exceed cost objectives and program office contractor(s) cost sharing arrangements (overrun/underrun).	X	X	**NSS 03-01 E4.8(d), SMCI 63-102**
e) If using a commercial system, describe strategy to ensure cost goals are met.	X	X	**NSS 03-01 E4.8(e), DoDI 5000.2, DoD 5000.4M, AFI 65-508, SMCI 63-102**
9 Risk Management			
a) Summary of program's risk management plan	-	X	**NSS 03-01 E4.9**
b) TRL assessment of each key technology component	X	X	**NSS 03-01 E4.9**
c) Identify the component(s) or subsystem(s) most directly affected	X	X	**NSS 03-01 E4.9**
d) Document risk mitigation strategies, actual or planned, being undertaken	X	X	**NSS 03-01 E4.9**
e) Document software capability maturity level of the contractor and how determined & risk reduction strategies	X	X	**NSS 03-01 E4.9**
f) Software development strategy	-	X	**NSS 03-01 E4.9**
g) Document status and results of any program related technology assessments and/or technology issues	X	X	**NSS 03-01 E4.2(l), PL 107-314 Sec. 803**
h) Technology Readiness Assessment	-	X	**NSS 03-01 AP1.1.11, PL 107-314 Sec. 803**
i) Risk Management Plan	-	**initial**	**NSS 03-01 E4.9, SMCI 63-102, A2.3, Atch 5**
10 Support Issues and Plans			
a) Manpower resource requirements document	-	X	**10 USC §2434, NSS 03-01 E4.10(a) SMCI 63-102**
b) Training plans	-	X	**AFI 36-2251, AFMAN 36-2234, NSS 03-01 E4.10(b), SMCI 63-102, Atch 5**
c) Summarize logistics supportability concepts	-	X	**Defense Acquisition Guidebook AFI 10-102, Para A2.5.1, MIL-PRF-49506, NSS 03-01 E4.10(c), SMCI 63-102, 4.8.3, 4.8, Atch 5**

IPS Contents

	KDP-A	KDP-B	References
d) Document program's planned adherence to related directives, policies, instructions, and regulations.	-	X	**10 USC §2432, 10 USC §2433 10 USC §2435, NSS 03-01 E4.10(d)**
e) Document depot maintenance analysis if appropriate	-	X	**10 USC §2460, 10 USC §2464 10 USC §2466, 10 USC §2469 10 USC §2474, NSS 03-01 E4.10(e) SMCI 63-102, Atch 5**
f) Schedule for transitioning program to Lead Command and into sustainment.	-	X	**10 USC §2460, 10 USC §2464 10 USC §2466, 10 USC §2469 10 USC §2474, PL 107-314 Sec. 803 NSS 03-01 E4.10(e)**
g) *Integrated Logistic Support (ILS) plan*	-	X	**Defense Acquisition Guidebook, AFI 10-102, Para A2.5.1, MIL-PRF-49506, NSS 03-01 E1(m), SMCI 63-102, Atch 5**
11 Architecture Description Information Support Plan			
a) Stage I Information Support Plan (ISP)	-	X	**DoDI 4630.8, DoDD 4630.5, CJCSI 6212-01C, NSS 03-01 E4.11, SMCI 63-102, Atch 5**
b) Operational Views (OV) of the integrated architecture	X	**update**	**NSS 03-01 E4.11 (a), DoDI 5000.2, SMCI 63-102, Atch 5**
c) Document Space Situational Awareness interface requirements	-	X	**NSS 03-01 E4.11 (c)**
12 Clinger-Cohen Act (CCA) Compliance			
a) Clinger-Cohen Act (CCA) Compliance Matrix	X	X	**40 USC §11101 PL 107-248 Sec. 8088, PL 105-261 Subtitle D, Sec. 311, et seq, NSS 03-01 E4.12 SMCI 63-102, Atch 5**
b) DoD CIO registration, if applicable	-	X	**40 USC §11101 PL 107-248 Sec. 8088, PL 105-261 Subtitle D, Sec. 311, et seq , NSS 03-01 E4.2(j)**
13 Program Protection Planning, Information Assurance Strategy, & Cryptological Systems			
a) Program Protection Planning (P3) information.	X	X	**CAPL 1.12, DoDD 5200.39 AFPD 63-17, AFPEO/SP SRTP Policy 63-17, Defense Acquisition Guidebook, NSS 03-01 E4.13(a) SMCI 63-102, Atch 5**
b) Verification that Information Assurance (IA) requirements are addressed during entire system life cycle	**initial**	X	**Defense Acquisition Guidebook DoD 8510.1-M, DoDD 8500.1 DoDI 8500.2, AFI 33-202, NSS 03-01 E4.13(b), SMCI 63-102, Atch 5**
c) CRYPTO requirements and NSA plans to meet these requirements	X	X	**NSS 03-01 E4.13(c), Defense Acquisition Guidebook**
d) Document system mission protection, program protection, system vulnerability, and radiation hardening requirements	X	X	**NSS 03-01 E4.4(f), DoDD 5200.39 AP1.1.12, AFPD 63-17, AFPEO/SP SRTP, Policy 63-17, Defense Acquisition Guidebook**
e) Systems Security Authorization Agreement	-	**initial**	**DoDI 5200.40, PL 100-235 NSS 03-01 E1(r)**
f) *Mission Protection Measures Assessment (ph. A, bot. y, ph. B, bot p, ph C, bot p)*	-	*initial*	**NSS 03-01 E1(n), DoDD 5200.39, AP1.1.12, AFPD 63-17, AFPEO/SP SRTP, Policy 63-17, Defense Acquisition Guidebook**
14 Developmental and/or Operational Testing Approach			
a) OT&E approved Test and Evaluation (T&E) Strategy	X	-	**DoDI 5000.2, NSS 03-01 E4.14 SMCI 63-102, Atch 5**
b) Test and Evaluation Master Plan (TEMP)	-	X	**10 USC 139, 10 USC 2366, 10 USC 2399, 10 USC 2399, 10 USC 2400, DoDI 5000.2, AFI 99-103, NSS 03-01 E4.14 , SMCI 63-102, Atch 5**
15 Program Environmental, Safety, and Occupational Health Evaluation			
a) Program Environmental, Safety, and Occupational Health Evaluation (PESHE) doc.	-	**initial**	**42 USC §4321 et seq, NSS 03-01 AP1.1.8, E1, E3, E4.14, E4.15 SMCI 63-102, Atch 5**
16 Program Office Estimate (POE) and Future Years Defense Plan Implications			
a) POE on a fiscal year basis for recommended alternative and how it fits within FYDP	X	X	**NSS 03-01 E4.16(a), SMCI 63-102, Atch 5**
b) ICA Status report (from ICAT Lead)	X	-	**NSS 03-01 E4.16(d), SMCI 63-102, Atch 5**
c) ICE Status report (from ICAT Lead)	-	X	**10 USC §2434, NSS 03-01 E4.16(d) SMCI 63-102, Atch 5**
d) Cost Analysis Requirements Description (CARD)	-	X	**DoDI 5000.2, DoD 5000.4M, AFI 65-508, NSS 03-01 E1(r), SMCI 63-102, Atch 5**
e) Life Cycle Cost (LCC) Estimate (consistent	-	X	**NSS 03-01 E1(q), SMCI 63-102, Atch 5**

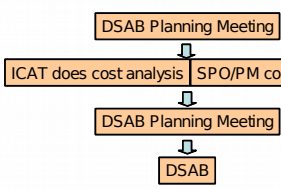
IPS Contents

	KDP-A	KDP-B	References
with CARD)			
17 Integrated Master Schedule			
a) Integrated Master Schedule (IMS)	-	X	**DI-MISC-81183A, NSS 03-01 E4.17 SMCI 63-102, Atch 6**
18 Recommendations (ADM, Exit Criteria, etc.)			
a) draft ADM	X	X	**NSS 03-01 AP4.1.2 & E2, E4.18(c) DoDI 5000.2 E3.T2, SMCI 63-102 4.2.6., A2.3.15, Atch 5**
b) draft APB	-	X	**10 USC §2435, 10 USC §2220(a)(2) NSS 03-01 AP4.1.3 & E1, E2, E3, E4.18(d), AFI 63-123, SMCI 63-102 A2.2.4. Atch 5**
OTHER NON-IPS DOCUMENTS			
• Team Composition & IPA Plan & Agenda (from IPAT Lead)	X	X	**NSS 03-01 E1(k), SMCI 63-102**
• *Determine LRIP quantity (Phase A, bullet h)*	-	X	**10 USC §2400, 10 USC §2399, NSS 03-01 E1(h), SMCI 63-102, Atch 5**
• Document the use of Defense Research activities	-	X	**NSS 03-01 AP1.2.1.2, E1, E4.6, E1(o) DoDI 5000.2 E3.T2, E6.5**
• Human System Integration (HSI) plan	-	X	**NSS 03-01 AP1.1.12, E1, E4.6, E1(f) DoDI 5000.2 E3.T2, E6.5**
• Internal & External Segment Synchronization Plan	-	**initial**	**NSS 03-01 AP1.2.1.2, E1, E4.6, E1(s) DoDI 5000.2 E3.T2, E6.5, SMCI 63-102, Atch 5**
• Information Assurance Strategy as appropriate (Phase A bullet p)		X	**Defense Acquisition Guidebook DoD 8510.1-M, DoDD 8500.1 DoDI 8500.2, AFI 33-202, NSS 03-01 E1(p), SMCI 63-102, Atch 5**

9 Guiding Principles of Space Acquisition

- Mission Success
- Accountability
- Streamlined / Agile
- Inclusive
- Flexible
- Stable
- Disciplined
- Credible
- Cost Realism

DSAB Process Notional Flow Diagram



MDA-Level Decision Points: In the DoD space acquisition process, there are four MDA-level decision points. An Independent Program Assessment is conducted prior to each decision point. Each point provides the DoD Space MDA with a structured opportunity to determine if the program is ready to proceed to the next phase. The program cannot proceed without DoD Space MDA approval at each decision point.

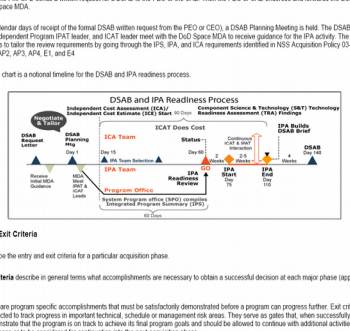
DSAB: NSS 03-01 requires the DoD Space MDA to convene a DSAB prior to Phases A, B, and C Approval. The DoD Space MDA relies on the advice and information from the DSAB to determine if the program should proceed to the next phase. There are three critical activities that must be completed to facilitate the DSAB review process:

- IPS (compiled by the SPD or PM)
- ICA or ICE (completed by the ICAT)
- IPA (conducted by the IPAT)

Although the Build Approval is not a KDP, the meeting will be preceded by an IPA and requires an ICE. A minimum of **five months** prior to the desired DSAB date, the PM/ SPD sends a written request for a DSAB to the PEO or the CAE. Then the PEO or CAE endorses and forwards the DSAB request to the DoD Space MDA.

Within ten calendar days of receipt of the formal DSAB written request from the PEO or CEO), a DSAB Planning Meeting is held. The DSAB Executive Secretary, Independent Program IPAT leader, and ICAT leader meet with the DoD Space MDA to receive guidance for the IPA activity. The purpose of the meeting is to tailor the review requirements by going through the IPS, IPA, and ICA requirements identified in NSS Acquisition Policy 03-01 Appendices AP2, AP3, AP4, E1, and E4

The following chart is a notional timeline for the DSAB and IPA readiness process.



Entry and Exit Criteria

ADMs describe the entry and exit criteria for a particular acquisition phase.

Entrance Criteria describe in general terms what accomplishments are necessary to obtain a successful decision at each major phase (apply to all programs).

Exit Criteria are program specific accomplishments that must be satisfactorily demonstrated before a program can progress further. Exit criteria are normally selected to track progress in important technical, schedule or management risk areas. They serve as gates that, when successfully passed or exited, demonstrate that the program is on track to achieve its final program goals and should be allowed to continue with additional activities within an acquisition phase or to be considered for continuation into the next acquisition phase.

IPAT: While any acquisition program may be directed to undergo an independent assessment because of special circumstances, the IPA is a standard requirement for space acquisition programs. An IPA is a focused, short duration, full-time review activity that typically runs from two to five weeks depending on the program's complexity. The IPA activity is usually conducted at the program office locale and/or the contractor facility to facilitate easy, ready access to the system experts, data, and equipment under review. The IPA is not a consensus process; rather, it produces an unbiased, structured, independent evaluation of the proposed space acquisition activity.

The purpose of the IPA is to review requirements, cost, schedule, technical, and programmatic aspects of the program under review.

ICAT: The DSD CAIG forms ICATs. The ICAT's primary function is the preparation of independent cost analyses in support of the DoD Space MDA at KDPs A, B, C and build approval in the DoD space acquisition process. The OSD CAIG selects the ICAT leader.

Pre KDP-A: Concept Studies

Initiation of Pre KDP-A: New mission needs, system obsolescence, economic benefits, technological opportunities, changes in threat, or other considerations, such as international standards, may cause new acquisition programs to be initiated. The Services and other DoD Components continually assess their missions and identify capabilities that are needed to accomplish required tasks. If a gap or deficiency exists in their ability to

accomplish the required tasks and missions and a material solution is needed, the appropriate representatives will generate ideas and concepts leading to development of an ICD. The purpose of Pre Key Decision Point A (KDP-A), Concept Studies is to refine the initial concept.

The ICD identifies the critical mission deficiency or gap that exists and details an evaluation of approaches that could potentially provide the needed capability. A recommended approach is proposed based on an analysis of different alternatives, along with a rationale for why the recommended approach best satisfies the desired joint capability. JROC approval of the ICD initiates Pre KDP-A, Concept Studies. CJCSI 3170.01 provides guidance in preparing an ICD.

AoA: The AoA further refines the preferred concept documented in the approved ICD and assesses critical technologies associated with the concept (on criteria including technology maturity and technical risk). The DoD Space Milestone Decision Authority (MDA) designates the appropriate entity to conduct the AoA.

System-Level CONOPS: The System-Level CONOPS is a high-level description of the space system, identifying the system's purpose, operational assumptions, desired effect, and use. The DoD Space MDA designates the appropriate entity to develop the System-Level CONOPS.

Acquisition Strategy: The Acquisition Strategy describes the acquisition approach the program office will use to acquire an NSS system. It focuses on the next phase activities, briefly projects the plans for the remaining acquisition phases, and is updated at each key decision point. The Acquisition Strategy also outlines the program description, program office activities, risk areas, design considerations, acquisition approach, program structure, and business and contracting strategy. The DoD Space MDA designates the appropriate entity to draft the initial Acquisition Strategy. The Acquisition Strategy is vetted by the ASP, which is chaired by the USecAF.

Initial CDD: The Joint Requirements Oversight Council (JROC) approves the Initial CDD. The CDD captures the information necessary to develop a proposed program(s), normally using an evolutionary acquisition strategy. It outlines an affordable increment of militarily useful, logistically supportable, and technically mature capability and it states the operational and support-related performance attributes of a system(s) that provide the capabilities required by the warfighter - attributes so significant they must be verified by testing and evaluation or analysis.

The CDD delineates the KPPs in a threshold-objective format. The KPPs are those attributes or characteristics of a system that are considered critical or essential to the development of an effective military capability and those attributes that make a significant contribution to the key characteristics as defined in the family of JOpsC.

OV Architecture Products from concept sponsor: Review JROC approved NSSO architectures to determine relevant architectures that apply to the program or system.

IPS from acquisition office: The IPS shall contain the majority of NSS acquisition documentation necessary for acquisition oversight. A decision to begin Pre KDP-A, Concept Studies, does **not** mean a new acquisition program has been initiated.

Three Activities Prior to DSAB Meeting: After the DSAB Planning Meeting, but before the formal DSAB, three activities need to be completed, the IPS, the IPA and the ICA.

IPS: The program office preparatory activities begin immediately after the DSAB Planning Meeting with the generation of the IPS. The purpose of the IPS is to provide a concise record that documents a NSS program's accomplishments, status, and plans at each KDP and Build Approval. The IPS is not a document that goes through coordination. The program office generates the IPS by incorporating a minimal set of pre-approved material (such as, capability documents, acquisition strategy, TEMP) and newly generated material that cover the IPS subject matter.

As the program matures, the information in the IPS evolves and becomes more definitive. The IPS includes:

1. Acquisition Strategy
2. Execution status of program
3. Acquisition Decision Memorandum (ADM) exit criteria and direction at previous KDP
4. Requirements summary
5. Systems engineering process review and System Engineering Plan
6. Alternatives assessed and results
7. Most promising alternatives and rationale
8. Cost drivers and major trade-offs
9. Risk assessment and risk reduction plans
10. Support issues
11. Integrated architectures and Information Support Plan
12. Clinger Cohen Act compliance
13. Mission protection, program protection planning, information assurance, and cryptological systems
14. Developmental and/or operational testing approach and Test and Evaluation Master Plan (TEMP)
15. Program Environmental, Safety, and Occupational Health Evaluation
16. Program office estimate and future years defense planning implications
17. Integrated Master Schedule (for KDP B, C, Build Approval)
18. Recommendations (ADM and exit criteria)

Once completed, the SPD/PM provides the IPS and referenced material to the IPAT leader prior to IPA start. The IPAT then uses the IPS as the starting point for the IPA review. Coordination and approval of the IPS material occurs as a result of a successful IPAT review. The program office is encouraged to begin preparation of the IPS well before the formal start of the IPA readiness process.

Independent Cost Analysis: The Independent Cost Analysis starts immediately after the DSAB Planning Meeting with ICAT member selection by the ICAT leader. The OSD CAIG is responsible for and leads the independent cost analyses of DoD MDAPs in support of the DoD Space MDA's DSAB review process.

Two Types of Independent Cost Analyses

Cost Analysis	Description	Timing
ICA	An analysis of program cost that is not as rigorous or reliable as an ICE, but serves as a reasonable cost and budget realism check.	DSAB for KDP A
ICE	A comprehensive estimate of the cost of a program prepared by an office or other entity that is not directly responsible for carrying out the development or acquisition of the program.	DSAB for KDP-B and KDP-C and at Build Approval

IPA: The IPAT leader begins planning IPA activities immediately after the DSAB Planning Meeting. The IPA is a short, focused review that typically lasts two to five weeks, depending on the program's complexity. The purpose of the IPA is to advise the DoD Space MDA of a program's readiness to proceed to the next acquisition phase.

Typically, the IPA will start two weeks after a successful IPA Readiness Review. If the decision is to proceed, the DSAB Executive Secretary will officially set the DSAB date with the DoD Space MDA and formally announce the IPA start and scheduled DSAB date to all interested parties.

IPA activity: The DSAB Executive Secretariat staff coordinates the administrative requirements. The SPD/PM is responsible for ensuring that all contractual vehicles and funding are in place and implemented to sustain the IPA core member administrative costs (such as travel costs, contractor, and salaries).

IPA Readiness Review meeting: The DSAB Executive Secretary will use the appropriate KDP section of the IPA Readiness Review checklist in NSS Acquisition Policy 03-01 Appendix E1 as a guide to determine a program's readiness to proceed into the IPA. At the IPA Readiness Review meeting, there is no pre-assessment of the quality of the material, only a decision based on whether everything necessary for the review to proceed smoothly is available, or will be available in time for the IPAT to start its review.

DSAB Meeting: During the DSAB meeting:

- SPD/PM presents a brief summary of the program.
- NSSO presents any architectural issues.
- IPAT leader presents the IPA findings and recommendations.
- ICAT leader presents the cost analysis findings and recommendations.

ADM: A key outcome of the DSAB review process is the ADM. The program office drafts the initial ADM and provides it as part of the IPS to the IPAT for review and comment. Following the formal DSAB meeting, the DoD Space MDA issues a written ADM that documents the decisions of the DSAB and establishes the exit criteria for the next phase. The DoD Space MDA signs the ADM within ten working days after completion of the DSAB. The signed ADM authorizes or prohibits the space program's advancement to the next acquisition phase. If additional program direction from the DoD Space MDA is required between DSABs, the DoD Space MDA will issue an "ADM Update" to the appropriate PEO.

Acquisition Phase A: Concept Development

Initiation of Phase A

At KDP A, MDA approval of the preferred concept initiates Phase A, Concept Development. The purpose of Phase A is to conduct requirements trades and refine selected technically feasible concept(s) to identify an affordable solution with acceptable technical risks that will satisfy the end user.

This phase is designed to determine the attainable and affordable concept through risk reduction and system concept refinement, including the System-Level CONOPS and available technology, while further refining the user's requirements.

Acquisition strategy: The Acquisition Strategy describes and documents the acquisition approach the program office will use to acquire the space system. An Acquisition Strategy is prepared for each phase of the acquisition and then updated as appropriate. Once the SPD/ PM develops the Acquisition Strategy, the appropriate Service PEO or CAE typically convenes and chairs an ASP to review the strategy and provide advice to the SPD/PM.

The Acquisition Strategy is approved by the DoD Space MDA prior to the PEO forwarding the DSAB request letter. Requests for Proposals associated with the next acquisition phase should not be released until after the DoD Space MDA has approved the Acquisition Strategy and approved the program entering the next acquisition phase.

TRA: An accurate TRA is critical to determining program risk. The SPD/PM is responsible for identifying critical technologies and conducting the TRA. For KDP-B and KDP-C, the Component S&T Executive will conduct an independent review of the SPD/PM generated TRA. The Component S&T Executive will provide the results of this independent review to the IPAT leader.

CDD: The CDD is a product of the JCIDS process and outlines the specific operational capabilities that will define the basis for formally beginning preliminary design on the proposed program(s), normally using an evolutionary acquisition strategy.

The CDD outlines an affordable increment of militarily useful, logistically supportable, and technically mature capability. The CDD states the operational and support-related performance attributes of a system(s) that provide the capabilities required by the warfighter - attributes so significant they must be verified by testing and evaluation or analysis.

The CDD delineates the KPPs in a threshold-objective format. The KPPs are those attributes or characteristics of a system that are considered critical or essential to the development of an effective military capability and those attributes that make a significant contribution to the key characteristics as defined in the family of JOpsC.

TEMP: The TEMP documents the overall structure and objectives of the T&E program. It provides a framework within which to generate detailed T&E plans and it documents schedule and resource implications associated with the T&E program. This TEMP identifies the necessary DT&E, OT&E, and LFT&E activities. It relates program schedule, test management strategy and structure, and required resources to COIs, CTPs, objectives and thresholds documented in the CDD, evaluation criteria, and milestone decision points. For multi-Service or joint programs, a single integrated TEMP is required. Component-unique content requirements, particularly evaluation criteria associated with COIs, can be addressed in a component-prepared annex to the basic TEMP.

APB: The APB documents the program's approved baseline by reporting top-level program drivers and risks associated with schedule, performance, and cost thresholds and objectives. The KDP A ADM serves as the APB for Phase A. A program deviation occurs when the SPD/ PM has reason to believe that the current estimate for the program indicates that a performance, schedule, or cost threshold will not be achieved. The SPD/PM will immediately notify the DoD Space MDA. Within 90 days, the SPD/PM must have the program back within APB parameters, or a new APB, changing only the applicable parameters, shall be presented to the DoD Space MDA for approval.

ICE: Prior to Key Decision Point B, the Office of the OSD CAIG produces a comprehensive ICE. The ICE is used by the DSAB and the DoD Space MDA when making the final determination as to whether or not the program is ready to proceed to the next acquisition phase. An ICE is used as opposed to an ICA when a more rigorous cost is required. For example: Pre-Phase A utilizes an ICA while Acquisition Phase A requires an ICE.

IPA: The IPAT conducts the short, focused IPA. The purpose of the IPA is to advise the DoD Space MDA of the program's readiness to proceed to the next acquisition phase.

ADM: A program is ready to exit Phase A, Concept Development, when the CDD is approved by the JROC, the concept(s) are sufficiently mature, and the program is ready to begin risk reduction and design development activities. A key outcome of the Defense Space Acquisition Board (DSAB) review process is the ADM. The ADM authorizes or prohibits the space program's advancement to the next acquisition phase. The ADM documents the decisions of the DSAB and establishes the exit criteria for the next phase

Complete IPA Readiness Review Checklist for KDP-B

1. Updated OV Architecture Products from concept sponsor (e.g., Ops Command, NSSO, others)
2. Initial Integrated Architecture for the system from program office
3. Updated system level CONOPS from concept sponsor (e.g. Lead Ops Command)
4. DoD Space MDA approved Acquisition Strategy from program office
5. Updated CDD from Capability Needs Authority (J8)
6. Director, OT&E Approved Test & Evaluation Master Plan from program office
7. Integrated Program Summary (IPS) from program office
8. Clinger Cohen Act Compliance table in IPS by program office
9. "New Start" certification from program office in IPS
10. Draft ADM from program office
11. Draft APB from program office
12. Status report on ICE from ICAT Leader
13. Team Composition and IPA Plan and Agenda from the IPAT Leader